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09/758,006	01/10/2001	Anselm Deninger	608.0006USU	9581

7590 11/16/2004

Charles N.J. Ruggiero, Esq.  
Ohlandt, Greeley, Ruggiero & Perle, L.L.P.  
10th Floor  
One Landmark Square  
Stamford, CT 06901-2682

EXAMINER

FREAY, CHARLES GRANT

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/758,006

Applicant(s)

DENINGER ET AL.

Examiner

Charles G Freay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 66-104, 112 and 113 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 96 and 104 is/are allowed.
- 6) ☒ Claim(s) 11-95, 97-103, 112 and 113 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/3/2001.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group II, Valve species I and compressor species I in the reply filed on September 20, 2004 is acknowledged.

### ***Drawings***

Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Fig. 2 has been described as "state of the art" throughout the specification. The examiner assumes this means that the figure shows prior art technology.

### ***Specification***

The disclosure is objected to because of the following informalities: the material of Fig. 2 is referred to as "state of the art" which the examiner assumes to mean "prior art". If this is the case the figure should be referred to as "prior art" in the specification.

Appropriate correction is required.

### ***Claim Objections***

Claim 72 is objected to because of the following informalities: in line 4 "little outgassing" tubes are referred to. The term "little" is relative and should be deleted for clarity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 66-95 and 97-103 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague and indefinite because in each of claims 66, 97 and 98 the UHV compatible lead through is set forth as having a housing with a first space having a first port which communicates with a space outside the housing, a second space with a second port, and a movable component separating the first space from the second space *via an intermediate space*. Looking at Fig. 4a for reference. The intermediate space would be space noted by reference numeral 1014. This space communicates with the port 1013 which is connected to outside the housing (the first port?). If port 1013 is the first port then it is unclear where the first space is. From the claim language it is unclear which part of the UHV lead through is being referred to by the first space

and the intermediate space. From the figures it seems that the first space should be the space surrounding the rod 1020 and that the first port should be set forth as connecting the intermediate space to the outside of the housing.

***Allowable Subject Matter***

Claims 96 and 104 are allowed.

Claims 97-103 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 66-95 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or make obvious a device for the production of nuclear spin polarized fluids having a compressor with fraction pumping or a UHV compatible lead through with a housing having first and second ports, an intermediate space on one side of a movable member, and a second space on the other side of the movable member connected to an optical pump assembly by the second port, the intermediate space being connected to a space outside the housing by the first port.

The closest prior art is shown in the Dissertation of Surakau titled "Entwicklung und Test eines He -Neutronen-Spinfilters". The general apparatus is shown in Fig. A4 (Abbildung A.4). The valves in this figure are generically disclosed and the pump member is sealed by a bellows arrangement. Fig. 3.10 and 3.16 disclose

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piston type valve members which create a seal by o-rings and bellows. There is no intermediate space having a second port communicating outside the lead through housing in an UHV compatible lead through. Further there is no fractional pumping of the valves or the pump arrangement. Devices in the prior art, such as Nagel, Schaefer and Evans disclose piston pump or valve members with leakage or pressurized sealing chambers at distal positions of the piston face. These teachings are in apparatus and applications which are much larger and where a "dirty type fluid" (containing a lubricant, particles, etc.) and the collection or draining spaces are intended to prevent the dirty fluid from reaching the motor or actuators and thus preventing (or indicating Nagel) damage to the device. One of ordinary skill in the art of producing and compressing nuclear spin polarized fluids would not look to these references, or find in their teachings, the material necessary to make obvious the claimed invention.

### ***Conclusion***

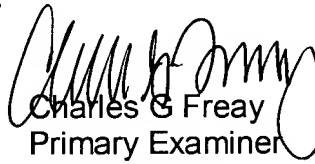
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagel, Schaefer and Evans disclose piston pump and piston type valve members with leakage connection space behind the pumping or sealing face.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G Freay whose telephone number is 703-308-0639. The examiner can normally be reached on Monday through Friday 8:30 A.M. to 5:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 703-306-2772. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Charles G. Freay  
Primary Examiner  
Art Unit 3746

CGF  
November 13, 2004